

REMARKS

Claims 1, 2 and 4-5 and 7-29 remain pending after amendment.

Claim Amendments

By this amendment, claim 6 is cancelled and the limitations thereof incorporated into claims 1. Support for the amendment of claim 1 also exists at page 9, line 22 to page 10, line 17 of the specification. Claim 3 is cancelled as being redundant, and claim 1 amended accordingly. Various editorial revisions are also made in the claims. New claims 25-29 are added directed to specific embodiments of the chemical and oxidative treatment of claim 1. Support for the new claims resides at pages 9 and 10 of the specification. No new matter is added by this amendment.

Restriction Requirement

Applicants' acknowledge the withdrawal from consideration of non-elected claims 2, 4, 7, 10-13, 15 and 17-24.

Objections to Claims

The Examiner objects to claims 1, 3, 9, 14 and 16 on formal grounds. In response, these claims are amended in a manner which is believed to overcome the objections of the Examiner. The objections are thus believed moot and should be withdrawn.

Rejection under 35 USC 102(b)

Claims 1, 3, 5, 6, 8, 9, 14 and 16 stand rejected under 35 USC 102(b) as being anticipated by JP 11-086808. This rejection respectfully is traversed to the extent deemed to apply to the claims as amended.

The cited '808 reference is directed to a sealing bag for a non-aqueous electrolyte battery. The sealing bag is defined by claim 1 of the reference as follows as:

"a sealing bag for a non-aqueous electrolyte battery constructed so that anode, cathode, electrolyte and so on are enclosed in the sealing bag and the lead wires for the anode and for the cathode are guided out therefrom, characterized in that the sealing bag is made of a laminated sheet composed of a metal layer and one or more layers of plastic resin, wherein the plastic resin layer laminated on the metal layer on the side of the electrolyte is constituted of a composition with a principal component of an acid-modified polyethylene, an acid-modified polypropylene or an ionomer and wherein the metal layer and the plastic resin layer are directly bonded together by heat lamination."

Thus, the '808 reference aims to provide an improvement in the durability of a laminated sheet for a sealing bag for a non-aqueous electrolyte battery comprised of a metal layer and a plastic resin layer by suppressing penetration of moisture and preventing the thus-caused corrosion of the metal layer, by means of a specific plastic resin layer and directly bonding the resin

layer with the metal layer by means of heat lamination (see paragraphs [0003] and [0004] of the reference).

By contrast thereto, the present invention seeks to improve the interlayer bonding tightness of a laminate of a metal layer and an adhesive resin layer for use in sealing the electrolyte or an electrode of a battery, by providing between the metal layer and the resin layer a *surface-treated layer formed by chemical or oxidative treatment of the metal* (as amended) and using a specific resin for the resin layer.

As noted above, the respective inventions are distinct from each other with respect to both the purpose of each invention and the means used to achieve that purpose. One of ordinary skill in the art would accordingly not arrive at applicants' claimed invention upon inspection of the teachings of the reference.

More specifically, the means of providing between the metal layer and the resin layer a surface-treated layer formed on the metal layer by chemical or oxidative treatment of the metal is neither taught nor suggested in the cited reference.

Further, applicants have determined that the claimed invention enables enhanced results to be achieved. Applicants direct the Examiner's attention to Example 1 of the present invention, where peeling off of the resin layer from the metal layer does not occur when used in contact with a non-aqueous electrolyte. This is for the reason that the present invention

brings about an improvement of interlayer bonding of the laminate comprised of a metal layer and a resin layer. This contributes to an increase in the durability due to the use of a surface-treated layer on the metal between the metal layer and the resin layer while employing a specific resin for the resin layer.

The cited '808 reference fails to disclose or suggest such an embodiment.

The Examiner's rejection appears to be based on the assumption (1) that the vapor-deposited metal layer surface corresponds to the surface-treated layer of the present invention, (2) that the anchor-coat of urethane resin, epoxy resin, or polyester resin used between the metal layer (9) and the resin layer (11) of the '808 reference (see paragraphs [0010] to [0015]) corresponds to the surface-treated layer of the present invention, and (3) that the acid-modified LDPE used in the reference corresponds to the adhesive resin of the present invention. Applicants disagree with the position of the Examiner.

The "vapor deposited metal layer" of the reference is a layer of metal coated on a substrate by vapor-deposition (i.e., metal deposition from a vapor under vacuum). This does not provide a surface-treated layer formed on a metal surface by *chemical or oxidative treatment* as now recited in claim 1.

Further, the urethane resin layer referenced by the Examiner is an anchor coat, as indicated in paragraphs [0003] and [0038]

of the reference, and is employed in the examples of the reference for facilitating the binding of the aluminum foil (corresponding to metal layer (9)) with the polyethylene terephthalate (PET) film which film does not correspond to the acid-modified LDPE layer. It is noted in paragraph [0020] of the reference that:

"20 μm thickness of acid-modified LDPE was applied onto an aluminum foil of a laminate, which has been prepared by laminating a PET film and the aluminum foil under intermediation by a layer of an adhesive based on urethane, by subjecting the resulting composite film to extrusion to obtain a coated laminate, before the coated laminate was subjected to heat sealing to obtain a composite sheet with direct bonding of the acid-modified LDPE layer with the aluminum foil, to be used for all Examples in common".

Thus, the urethane resin mentioned by the Examiner is used to assist the binding of the aluminum foil (metal layer 9) to the PET layer 11, as opposed to assisting the binding of the aluminum foil to the acid-modified LDPE layer, and does not correspond to the surface-treated layer of the laminate of the present invention. Instead, the surface-treated layer of the present invention resides between the metal layer and the polyolefin adhesive resin layer, whereas the urethane-based adhesive resin of the reference is not present between the metal layer and the acid-modified LDPE resin layer. This is further made clear upon review of the description in the reference at paragraph [0011], wherein it is stated:

"the inventors reached a contrivance of using, for the plastic resin layer constituting the sealing bag, an acid-modified polyethylene, an acid-modified polypropylene or an ionomer and directly bonding it with the metal layer by heat lamination without using any adhesive."

The anchor coat layer of urethane resin, epoxy resin or polyester resin of the reference corresponds to the primer layer described in the comparative examples of the present specification. Comparative Example 6 of the reference describes binding an aluminum foil with an acid-modified LDPE under intermediation by an anchor coat based on urethane. This corresponds to Comparative Examples 1-4 of applicants' specification, wherein the metal layer is bound with the polyolefin adhesive resin layer under intermediation by a primer layer. As shown in Table 1 of the present invention, premature peeling-off of the adhesive resin layer from the metal layer is expected after prolonged contact with the non-aqueous electrolyte.

Such premature peeling-off problems are avoided by applicants' invention by incorporating the surface-treated layer formed over the metal layer by a chemical or oxidative treatment of the metal.

In view of the above, it is clear that the claimed invention is not anticipated by the cited reference, as the reference fails to teach or suggest the limitations of incorporating a surface-treated layer formed over the metal layer by chemical or oxidative treatment of the metal in accordance with applicants' invention.

In view of the above, the rejection is without basis and should be withdrawn.

Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact James W. Hellwege (Reg. No. 28,808) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By James Hellwege 28,808 fm
Marc S. Weiner, #32,181

MSW/JWH/lab
0992-0127P

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000